STEM RUST AND BARBERRY NEWS

Issued by

Division of Barberry Eradication

Volume III January 25, 1932 Number 1

Bureau of Plant Industry
U. S. Department of Agriculture.

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WORK IN THE BLACK EARTH AREA, DANE COUNTY, WISCONSIN

Black Earth has been a by-word in barberry eradication since the first survey, and it has spelled salt in carload lots since second survey began. Second survey in approximately 170 square miles of this area of heavily wooded hills, bluffs, and ravines which can rightfully be called the Black Earth area, was completed last summer. The work proposals this year will not include second survey in Dane County in the vicinity of Black Earth, a fact which marks the achievement as a mile-stone in the progress of the barberry eradication campaign in this State.

This area spread from a nursery which was established on the Bell farm early in the history of the community. Barberry bushes were sold and disseminated by natural means until the spread reached for miles in every direction.

In 1928, with the initiation of the squad-leader check system of scouting, the second survey was started on the property which marked the site of the old nursery. A 6-man crew worked an entire summer in scouting 10 square miles of territory. Perhaps the last statement should read - In salting 10 square miles of territory - for during this season the squad salted 65,205 bushes and seedlings.

The work was continued in 1929, resulting in the eradication of 37,459 bushes and seedlings in an area of 13 square miles. The continued spread of bushes in such inaccessible places and the handling of large quantities of salt made progress very slow. In the fall and winter of 1929 plans were made to try local laborers for survey work in 1930.

Before the field season started in 1930, Mr. Caldwell the Leader, accompanied by Mr. Hendrickson, squad leader, made a trip to Black Earth for the purpose of hiring men. Mr. Hendrickson, who had worked in the

territory for two years, was well acquainted and his choice of men was excellent. The labor crews went into the field in June, and the two 6-man squads scouted 66 square miles of country, and salted 21,107 bushes before work ceased in the fall. Mr. Hendrickson states that the men were very reliable and efficient after two weeks' work in barberry infested country.

Every local man who worked in 1930 was available at the start of the past season, and four of them began work on May 1 and continued well into November. The remainder started early in June and worked until the general field season closed on September 12. The work in the Black Earth area resulted in the finding of only 1,462 bushes on the outer edge of the area but the work continued to the northward extending into another area of escaped bushes extending south from Sauk City with only a slight break between the two areas.

The records show that 125,233 bushes were removed from the area on the second survey, and 170 square miles of territory can be designated as constituting the Black Earth area proper. During the first survey 92,021 bushes and 1,145,398 seedlings were eradicated. The total for all surveys in the area is 1,362,652 bushes and seedlings.

Vern O. Taylor.

INFORMATIONAL ACTIVITIES IN MINNESOTA, 1931.

Barberry eradication must be practised continually if future grains are to be protected. To do this the citizens of tomorrow must be taught the importance of barberry eradication. To accomplish this we worked with organized groups such as schools and 4-H Clubs during 1931. The officials in charge of these groups always were willing to cooperate, because they recognized the educational value of our project. The barberry men were careful not to bother the school teachers any more than was necessary in order to give the children the proper information. This precaution pleased the school officials who accorded the barberry representative every courtesy. The following summary by W. C. Hanson, assistant leader, gives an idea as to how the intensive school campaign was conducted.

"The intensive barberry school campaign in Minnesota was begun April 16, 1931. The success of the 1929 and 1930 campaigns proved that this type of informational activity was worth while. Accordingly three men, instead of one as previously used, were assigned to this task. Messrs. F. R. Rasmussen started in Renville County, L. M. Stahler in Rice County, and E. W. Hanson in Nicollet County. On the completion of these counties they went to Blue Earth, Waseca, and Meeker Counties respectively. The latter county was completed in the spring, but Blue Earth and Waseca Counties were left uncompleted at that time because of the large number of schools closing early.

"On September 15 Messrs. F. R. Rasmussen and K. W. Ingwalson proceeded to Blue Earth County and Messrs. W. C. Hanson and Rolland Lorenz went to Waseca County to complete the school work. By October 1 both of these counties were completed. Messrs. Rasmussen, Ingwalson, and Lorenz then resigned, but Mr. Hanson proceeded to Chippewa County where he later was joined by Mr. E. H. Ostrom. These two agents completed the intensive school campaign in Chippewa, Kandiyohi, Swift, Big Stone, and part of Traverse Counties before road conditions made this work impracticable.

"Before work was started in a county, the county superintendent of schools was interviewed and arrangements were made for him to send out letters to the teachers in all of the schools. The whole-hearted cooperation of the county superintendents of schools is very desirable since the cooperation received from them is directly proportional to the cooperation received from the teachers. In all cases the superintendents were very cordial and pleased to have a representative of the U. S. Department visit their schools. County agents were also interviewed and they cooperated very heartily. However, not all of the counties had agents. Contacts also were made with influential citizens in all of the counties.

"The visits at the schools consisted of talks varying from 20 to 30 minutes or more, depending upon the age and interest of the pupils. The talk consisted of an introduction followed by a short sketch of the life history of black stem rust. The characteristics of both the common and Japanese barberry were given. The Rust Buster medal was shown and the children were told how they could earn one. At this point the school was organized into a Rust Busters Club, and the pupils were given a chance to come up and examine the bush closely. After the speaker was quite certain that the children knew what the bush looked like, they were presented with N. R. B. C. buttons. In closing the speech a plea was made for the pupils to go out and search for common barberries. This final plea proved very effective as the children were eager to get out and look for barberries. In one instance a girl found a bush during recess, and in several cases bushes were found the same day the talk was given.

"The schools visited consisted of rural, parochial, normal training, and high schools. The normal training schools were given a more detailed talk than the others. However, the talks given in high schools were very much like the talks given in the rural schools, only they were presented in a manner that would be more fitting to older children.

"Lesson plan sets, posters, and other printed matter were left with each school. In high schools, laboratory outlines and prepared microscopic slide sets, showing the life history of black stem rust, were left with the biology or agricultural department. The teachers were glad to get these and were very cooperative.

"The informational campaign in schools this year resulted in finding 210 barberry bushes on 58 locations. It is interesting to note that several locations were found in towns and some of these bushes were quite large. The bushes found as a result of the school campaign were quite evenly distributed over a large area and undoubtedly had been spreading rust in the central and west-central part of Minnesota."

What the children learned by these talks seemed to have a lasting effect. In Dakota County where the intensive school campaign was first tried in 1929, school children reported barberries in this county in 1931 and the same holds true for Goodhue and other counties. If one visit can accomplish a lasting effect, it would seem advisable to push this campaign in the schools as rapidly as possible.

Leonard W. Melander.

RUST SITUATION IN ILLINOIS

In summarizing the rust situation in Illinois during the field season of 1931 Mr. Bills has compiled the following brief report which it is believed will be very interesting to all of our readers. As barberry bushes become less numerous a direct relation between the occurrence of rust and the presence of known areas of escaped bushes becomes increasingly evident. The following information is taken from Mr. Bills' report:

"From the beginning of the season rust conditions were kept under observation. Field agents working in northern Illinois kept a daily watch of rust conditions. Southern Illinois was observed May 20 and 21, June 15 and 19, and in August.

"Rust on grains was found in northern Illinois (Lee County) on June 10, and in southern Illinois (St. Clair County) June 19. The latter infection probably took place earlier than that found in Lee County. After that time rust was found on grains in the northern counties in which field agents were working.

"First barberry infections were found in northern Illinois on May 2 and 4, after which they were found repeatedly. The infections were more severe than were observed in previous years.

"Spreads of rust from barberry bushes to grain fields were observed at several places after June 20. One in particular was observed near Aurora by Mr. Wright. A bush growing in the fence near the corner of a field of oats was found to be moderately rusted on July 5. The oats were rusted for a distance of only about 15 feet. Weekly observations were made to determine the rapidity with which the rust progressed through the field. It was evident that the rust was moving from the center of

infection to the opposite corner of the field which it reached after three weeks. Crown rust was also prevalent in sufficient severity to cause a loss to the grower.

"Very careful observations were made by Mr. Davis in the east-central prairie region of Kankakee and Iroquois Counties on July 9 and 10. He examined fields of oats averaging about one mile apart for a distance of 100 miles. His route was south of Kankakee and also four 15-mile trips west of this road at intervals of about 10 miles. The infections run about 2p on 50-75% of the plants. The plants were in the late milk and early dough stages. The only places in which heavier infection than two pustules per plant was found were adjacent to a known escaped area, adjacent to a location of barberry which has since been reported to the office and destroyed, and a region near Clifton.

"Another rust inspection trip through northern and western Illinois the last week of July gave interesting results. Heavy rust on oats, particularly the late oats, was being reported from the counties in which . . agents were working. Observations in adjacent counties also raised the question as to the source of the rust. In order to determine the extent ofthe area of heavy rust infection, Mr. Davis made a trip through the three northwestern counties of the State and the Leader made a trip through the western counties as far south as Springfield, Sangamon County. The results of the observations are shown in the following table which gives the prevalence of rust and the estimated damage to the crop in the counties in which examinations were made. The prevalence of rust and the amount of damage diminished rapidly toward the center of the State. Later observations made farther south showed almost no rust present in any of the fields.

County	Severity	Estimated % loss	County	Severity	Estimated % loss
Lake	90	4	Warren	80	10
Stephenson	50 - 100	5	Mercer	90	12
Jo Daviess	5 - 50	2	Henderson	80	10
Carroll	50 - 100	0 - 5	McDonough	20	Tr
Ogle	95 - 100	10 - 15	Schuyler	Tr	Tr
Kane	95 - 100	15	Cass	Tr	Tr
Dupage	98	5 - 10	Morgan	Tr	0
Kankakee	90	5	Sangamon	20	Tr
Rock Island	95	12	Macon	Tr	0
Henry	95	15	Piatt	40	2
Bureau	95	15			

"During 1931 we found more than 11,000 bushes. Nearly all of these were located in seven northern counties. A few reports from school

children in adjacent counties have come in since the close of the season. Because of this, it is almost a certainty that many thousands of bushes remain in northern Illinois. But even if this information were not at hand, the results of the rust observations would show just as clearly that barberry bushes remaining in considerable numbers in northern Illinois are a threat to the successful production of spring grains." (R. W. Bills)

Influence of Bulletins, News Stories, and Circular Letters upon Farm Practices

Excerpts from Extension Service Circular 57, by Mr. M. C. Wilson, in Charge, Extension Studies, Office of Cooperative Extension Work, U. S. Department of Agriculture.

"In the last analysis the comparative efficiency of the means and the agencies employed in extension teaching will be determined by the cost of influencing the adoption of improved practices through their use.

* * * *

". . . Less than 4 per cent of the extension workers' time is spent in writing news items, interviewing local editors, and the like, yet more than 13 per cent of the practices adopted were credited to the influence of news stories. Exhibits required slightly more time, but obtained less than one per cent of the results. Approximately the same amount of time was spent on circular letter and bulletin distribution, - a little less than 3 per cent each. Only 1.9 per cent of the practices were credited to the former while 8.4 per cent were credited to the latter.

"On the basis of ratio of returns per unit of time, news stories lead, followed closely by bulletins, the returns per unit of time for both of these methods being about five times that for a like amount of time devoted to circular letters. Circular letters yielded nearly three times the returns that resulted from the same time devoted to extension exhibits.

"It does not necessarily follow that an extension worker can devote unlimited time to news stories, bulletin writing and distribution, or other highly efficient means, without decreased return per unit of time. However, these methods should not be overlooked as effective means of enlarging the influence of result demonstrations, farm visits, and meetings.

"One must also constantly keep in mind the interrelationship of the various methods. The news story must relate to something - the demonstration, a meeting, the experience of a good farmer, the statement of a specialist, or the work of the experiment station. Many agents doubtless make the mistake of not placing sufficient emphasis on those means which expose large numbers of people to the influence of extension.

* * * *

"Are Bulletins Used? -- Of 1035 farmers who had received one or more bulletins, 86 per cent reported having read at least part of the bulletins received. Fifty-six per cent of those receiving bulletins saved them for reference. That some definite farm or home practice had been adopted due to information obtained from bulletins was reported by 62 per cent of the farmers getting bulletins. The percentage of farmers reading bulletins is practically the same in the different States. There is also little variation in the percentage of farmers adopting practices from bulletins, the lowest percentage being 55 and the highest 64. It is evident that not only do a large proportion of farmers getting bulletins read them but they also make practical application of the information carried in them."

Mr. Wilson states that more farm owners than tenants receive bulletins but apparently make no greater use of them -- the ratio of takes to exposure being approximately 0.62 in each group.

Mr. Wilson also learned from his studies that "the educational training of the farmers and farm women plays an important part in the use of bulletins.

"The fact, however, that more than half (55 per cent) of those with eighth grade education or less made use of information received in bulletins is evidence that a considerable portion of the State and Federal bulletins have been written in simple language."

Mr. Wilson believes that "the agricultural editor holds a strategic position in the extension organization," and that he "has an important function to perform in connection with every extension project in seeing that the proper emphasis is placed upon those teaching methods most productive of results."

Mr. Wilson concludes, in part, in Extension Service Circular No. 78, Distribution of Bulletins and Their Use by Farmers, that "although certain methods of bulletin distribution were more effective than others, the least effective brought good returns in terms of farmers using bulletin information."

"Farmers made slightly greater use of farm-paper information than of bulletin information. In ranking sources of printed information, one out of three placed farm papers and home magazines first, while approximately one out of six placed bulletins and circulars first."

Abstracted by G. E. Matheny.

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P.B.A. Circular No. 191 December 10, 1931.

Field Requisitions for Supplies

A recent survey shows that seven of the larger bureaus of the Department already have definitely established procedures requiring their field units so to anticipate their needs for common supplies provided

from central supply depots that all shipments may move as freight, that advantage may be taken of the lower rates by water when the supplies move from coast to coast, and that the number of shipments may be reduced to a minimum. The advantages of such an arrangement are obvious, provided due care is taken to avoid overstocking and resultant waste from deterioration of stock, etc.

By consolidation of orders fewer and larger purchases, with larger quantity discounts, are made by the central supply units; much paper work in connection with purchasing, shipping, and the settlement of accounts is avoided because of the marked reduction in the number of transactions; field activities are less frequently interrupted for the purpose of determining supply needs and preparing supply requisitions; and the working force in central supply depots is reduced in number and its work adjusted to an even tempo. In the bureaus above referred to a variation is noted in the supply period covered by each requisition. In some of them the period is six months, in others three, depending upon such factors as volume of supplies involved, station storage facilities, annual operating period of the station, and the like. Two of the bureaus have set up "staggered" programs under which a third of their field stations requisition supplies on January 1, April 1, July 1, and October 1, a third on February 1, May 1, August, and November 1, and the remaining stations on March 1, June 1, September 1, and December 1. In this way a very small central personnel takes adequate care of a fairly large field organization.

In a number of other bureaus, although there has been no such regulation of the supply problem by official orders, the larger field stations have, for convenience, more or less generally acquired the habit of periodic ordering, and central shipping agencies have accommodated themselves to the arrangement. In one of these bureaus, the supply office at stated intervals ships, without station requisition, certain special supplies which it knows will be required in the quantities provided. It is readily perceived, however, that this method has its limitations. In a small number of the bureaus no particular effort seems to have been made toward the application of any systematic supply plan involving the periodic principle.

It is believed that administrative officers generally should study their supply problems in the light of the foregoing facts, and in so far as may be advisable institute periodic requisitioning as a feature of bureau property procedure.

W. W. Stockberger, Director.

EPIDEMIOLOGY

About January 1 there was a little uredinial material of stem rust on oats in northern Texas, although none was found on wheat. Butler made a trip during Christmas week and found a few pustules on oats at McKinney, Allen, Gainesville, Sherman, Denton, and a few other places. That the

rust was not spreading is indicated by the fact that at McKinney no rust could be found on January 3 in the same clump of oats in which it was found on December 26. Furthermore, at Santa Anna on December 24 a few pustules were found in one clump, but 50 leaves within a radius of two feet of this clump were examined carefully leaf by leaf and no rust could be found. On January 3 Butler and Stakman found one field of volunteer oats near Frisco, which is in the Dallas area, in which some of the plants were very heavily infected. The reason for this exceptional situation is probably the fact that the field was volunteer oats and had been infected fairly early in the fall. As there had been no real freeze, the rust was still persisting. The indications are that when overwintering occurs in Texas it occurs sporadically in fields in which conditions are exceptionally favorable. The fact that the uredinial stage occurs in northern Texas now does not mean that it will succeed in persisting through the winter, as the fall and early winter in northern Texas, as in many other places, has been extraordinarily mild. It is quite likely that after there has been some alternate freezing and thawing most of the urediniospores will be killed.

Hybridization work is still in progress, but because of unfavorable weather and certain other facts which seem to be beyond control many of the attempts at crossing were unsuccessful. (Jan. 14 - E. C. Stakman)

EASTERN REGION

Ohio - 8 East Broad St., Columbus - Harry Atwood

Arrangements have been made with the 4-H Club Agent of Knox County whereby each member of the 50 clubs under his direction will learn about barberry eradication during the coming summer. Suitable material will be given to each leader in order that he may present it at the regular meetings of the club. Points of credit will be given to each club member who finds and reports a common barberry bush. This project will be a part of the community work of the club.

The botany departments of our colleges, universities, and normal schools are making use of the lantern slides, film strip, and illustrative material in their classroom instruction. This material aids in the presentation of the subject of Barberry Eradication and Black Stem Rust Control.

The County Superintendents of Schools in many of the counties in which we are carrying on informational activities are requesting that we send the material direct to their offices and they in turn will arrange for its distribution to their teachers. These superintendents are willing to give considerable time to the teaching of this material in their school system.

Contacts with vocational agriculture teachers are being made at group meetings. The film strip or lantern slides are generally shown. Arrangements are then made to supply material for use in their schools. (Jan. 14)

Indiana - Purdue Experiment Station Annex, West Lafayette - W. E. Leer

The intensive school work in Jackson County was completed December 17. As a result of this work, one location of one bush has been found to date. However, in addition to the location reported by a school boy, Mr. McCoy found some escaped bushes in Jackson County.

A talk was given on January 5 at a meeting of the Izaak Walton League of Tippecanoe County who had as their guests boy scouts and farmers. As a result of the letters being sent to the local presidents of the Izaak Walton Leagues of the State, much interest is being shown by the League. The League is very anxious to do everything possible to help the farmers in order that a better understanding between the League and the farmers can be had.

Mr. McCoy, who has been doing school work in Indiana for the past several years, had an emergency operation for appendicitis December 18, and will be unable to return to duty before January 18, or possibly February 1. (Jan. 8)

Michigan - Michigan State College, East Lansing - Francis B. Powers

From November 30 to December 17 the Leader had visited 27 county normal schools, one State normal and one college. In each place the talks were illustrated by pictures or film strips. In the county normals 657 prospective rural school teachers were reached, at the State normal 88, of which 60 were in agricultural classes and 28 in nature study. In schools where county normals were located with the high schools the Leader also spoke to 64 in agriculture classes, 107 in biology or botany classes, and 200 in general assembly. At Alma College he spoke to 200 biology students.

En route he set up a demonstration at a Future Farmers Crop Show at Midland and removed it after three days. He investigated a barberry location near Bay City reported by a school boy and assisted by this boy salted eight common barberry bushes.

There were not more than 20 boys enrolled in all of the county normals. This is significant. In high school most girls do not study agriculture. There is a tendency among superintendents of high schools to assume that the girls are not interested in barberry eradication and to turn over only agriculture classes to a speaker. Most of our rural school teachers are girls and the best place to reach such teachers is in the county normals.

Without exception the Leader was welcomed by the principal of the county normal and given as much time as he needed. Discussions and questions followed the talk and it was evident that interest was aroused. Several requests for material have already been received and others will undoubtedly come when the teachers enter the field.

Before starting this work the Leader made out a schedule and consulted the State Supervisor of Normal Schools. He wrote each principal the date and hour he would arrive and held rigidly to his schedule. The State Supervisor gave general information concerning his visit in a circular letter. (Dec. 23)

Wisconsin - State Capitol Annex, Madison - Vern O. Taylor

The annual report has been receiving the major portion of attention at this office along with the routine work of a general informational campaign. Study materials have been sent to 71 high schools in the State and requests are still being received. The slides and motion picture films are in great demand with the film strips and projector being called for more than the others. The film strip and projector was a valuable addition to our informational equipment as it can be used in schools and meetings where projection equipment is not available otherwise.

During the Christmas rush season, the post office used seven of the barberry trucks. The trucks were very efficiently handled by Mr. Haley, motor vehicle clerk of the local office, and the cars were returned in better condition than they were upon coming in from the field last fall. A thorough check on the condition of the trucks was made before they were borrowed, and necessary repairs were made by the mechanic. Mr. Haley kept a record of each truck on our daily report form and left nothing undone that would simplify our records. The mechanic's work on the trucks disclosed much that will be useful in overhauling the cars in the near future. (Jan. 13)

WESTERN REGION

Minnesota - University Farm, St. Paul - Leonard W. Melander

Plans for the next season's weed campaign in Minnesota are now being formulated. A meeting of county commissioners is to be held at Mankato, Tuesday, January 26. Commissioners from those counties that have had outstanding results with the Redwood county plan of weed control will tell how these results were accomplished. This meeting in all probability will result in the adoption of the Redwood county weed control program by several more southern Minnesota counties. If this week program is put on

a permanent basis it will help the barberry campaign considerably.

So far this month the Leader has given three talks at farmer's institutes and farmer's meetings in Morrison County, two talks at a crop show in Sleepy Eye, and one at a farmer's meeting in Brown County. There was an aggregate attendance of at least 700 farmers at these meetings. During the week of January 18 to 23, inclusive (Farmers' and Homemakers' Short Course) tentative arrangements for talks at meetings during the next two or three months were made with county agents. (Jan. 22)

Iowa - Morrill Hall, Iowa State College, Ames - D. R. Shepherd

We had good intentions this fall of beginning the New Year right by not having any lead slips hanging over from 1931. On November 20 when the field men returned, practically all of the lead slips had been looked up. The look-up file was nearly destitute. Today, however, we again have 51 reported plantings on file; all of which have been investigated and all of which are barberry bushes. It is quite evident that we still have many barberries growing in Iowa.

This Office is making plans to place a barberry demonstration at The All College Grain Show on January 7 and 8, and at the Iowa State College Corn Show during the Farm and Home Week, February 1 to 5. The exhibit shown at the Corn Show will be similar to the one used on our fair circuit during the past fair season.

Regardless of our wintry weather, Linn County Rust Busters are still making an effort to win the award for finding barberry bushes. One or more letters come to the office every day from Rust Busters; some of which include specimens of bushes that are being reported as barberries; some of the letters, however, merely state the status of the club and indicate that the members are still searching for the bushes. Two new properties have recently been reported by boys who learned about the barberry through the talks that were given by Mr. Brown at the Cedar Rapids Junior High Schools. In that Mr. Brown did not talk at the Cedar Rapids schools until very late this fall, we no doubt will not receive many city reports until bushes begin to leaf out again in the spring. (Jan. 5)

QUESTION BOX

The following questions have been asked. Leaders having information on these subjects are asked to send it in. Answers to these questions will appear in a subsequent issue.

1. Has it been found worthwhile to make two visits to rural schools when doing informational work?
2. What is the relative cost of making two trips to rural schools?
3. If two visits are not being made, are the accomplishments satisfactory?
4. Are similar results accomplished when schools are organized as Rust Buster Clubs as when they are not?